

WO 2004/056810 A1

540.458

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
8 July 2004 (08.07.2004)

PCT

(10) International Publication Number
WO 2004/056810 A1

(51) International Patent Classification⁷: C07D 405/12, A61K 31/40, A61P 11/00, 1/00

(21) International Application Number:
PCT/IB2002/005589

(22) International Filing Date:
23 December 2002 (23.12.2002)

(25) Filing Language:
English

(26) Publication Language:
English

(71) Applicant (for all designated States except US): RANBAXY LABORATORIES LIMITED [IN/IN]; 19, Nehru Place, 110 019 New Delhi (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): MEHTA, Anita [IN/IN]; L-19/3, DLF Qutab Enclave, Phase - II, 122001 Gurgaon, Haryana (IN). SRIVASTAVA, Sanjay, Kumar [IN/IN]; 582, Sector-17, 122001 Gurgaon, Haryana (IN). GUPTA, Jang, Bahadur [IN/IN]; 349, Sector-14, 122001 Gurgaon, Haryana (IN).

(74) Common Representative: RANBAXY LABORATORIES LIMITED; c/o Deshmukh, Jayadeep, R., 600 College Road East, Suite 2100, Princeton, NJ 08540 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: XANTHINE DERIVATIVES AS MUSCARINIC RECEPTOR ANTAGONISTS

(57) Abstract: This invention generally relates to the derivatives of 3,6 disubstituted azabicyclo[3.1.0] hexanes. The compounds of this invention can function as muscarinic receptor antagonists, inter alia for the treatment of various diseases of the respiratory, urinary and gastrointestinal systems mediated through muscarinic receptors. The invention also relates to a process for the preparation of the compounds of the present invention, pharmaceutical compositions containing the compounds of the present invention and the methods for treating the diseases mediated through muscarinic receptors.

INTERNATIONAL SEARCH REPORT

Application No

PCT/IB 02/05589

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07D405/12 A61K31/40 A61P11/00 A61P1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07D A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 309 422 A (ISTITUTO DE ANGELI S.P.A.) 29 March 1989 (1989-03-29) claims 1-19 -----	1-18
Y	WO 01 04118 A (ALMIRALL PRODESFARMA S.A.) 18 January 2001 (2001-01-18) claims 1-35 -----	1-18
A	WO 98 05292 A (SCHERING CORPORATION) 12 February 1998 (1998-02-12) claims 1-12 -----	1-18

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

10 April 2003

Date of mailing of the international search report

17/04/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Herz, C

INTERNATIONAL SEARCH REPORT

Application No

PCT/IB 02/05589

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 309422	A	29-03-1989		AU 2238088 A DD 282689 A5 DK 522688 A EP 0309422 A2 FI 884305 A JP 1132567 A NO 884174 A PL 274753 A1 PT 88544 A YU 177188 A1	23-03-1989 19-09-1990 22-03-1989 29-03-1989 22-03-1989 25-05-1989 22-03-1989 12-06-1989 31-07-1989 30-04-1990
WO 0104118	A	18-01-2001		ES 2165768 A1 AU 6433000 A BG 106301 A BR 0012434 A CN 1373760 T CZ 20020121 A3 WO 0104118 A2 EP 1200431 A2 HU 0202100 A2 JP 2003504368 T NO 20020180 A TR 200200768 T2 US 2003055080 A1	16-03-2002 30-01-2001 30-08-2002 02-04-2002 09-10-2002 13-11-2002 18-01-2001 02-05-2002 28-10-2002 04-02-2003 13-03-2002 22-07-2002 20-03-2003
WO 9805292	A	12-02-1998		US 5889006 A AT 233260 T AU 724001 B2 AU 3899997 A BR 9711119 A CN 1232462 A ,B CZ 9900366 A3 DE 69719354 D1 EP 0938483 A2 HU 9902827 A2 JP 2000501117 T KR 2000029947 A NO 990551 A NZ 333801 A PL 331534 A1 SK 15599 A3 TR 9900255 T2 WO 9805292 A2 US 6043255 A ZA 9707011 A	30-03-1999 15-03-2003 07-09-2000 25-02-1998 23-11-1999 20-10-1999 16-06-1999 03-04-2003 01-09-1999 28-08-2000 02-02-2000 25-05-2000 07-04-1999 28-04-2000 19-07-1999 13-03-2000 21-07-1999 12-02-1998 28-03-2000 06-02-1998